

Engineered Wood Flooring

Presented By: PID Floors

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Course Description



This seminar explores the uses and benefits of engineered wood flooring. Design professionals will become more familiar with the construction and manufacturing processes of engineered wood flooring in an effort to properly specify the material for their client projects.

Learning Objectives



- Identify the construction of engineered wood flooring, how it differs from solid wood flooring
- Understand the manufacturing process for engineered wood flooring
- Recognize when, where to specify engineered wood flooring products
- Describe routine, long-term care, maintenance of engineered wood flooring



Engineered Wood Flooring



Types of Hardwood Floors

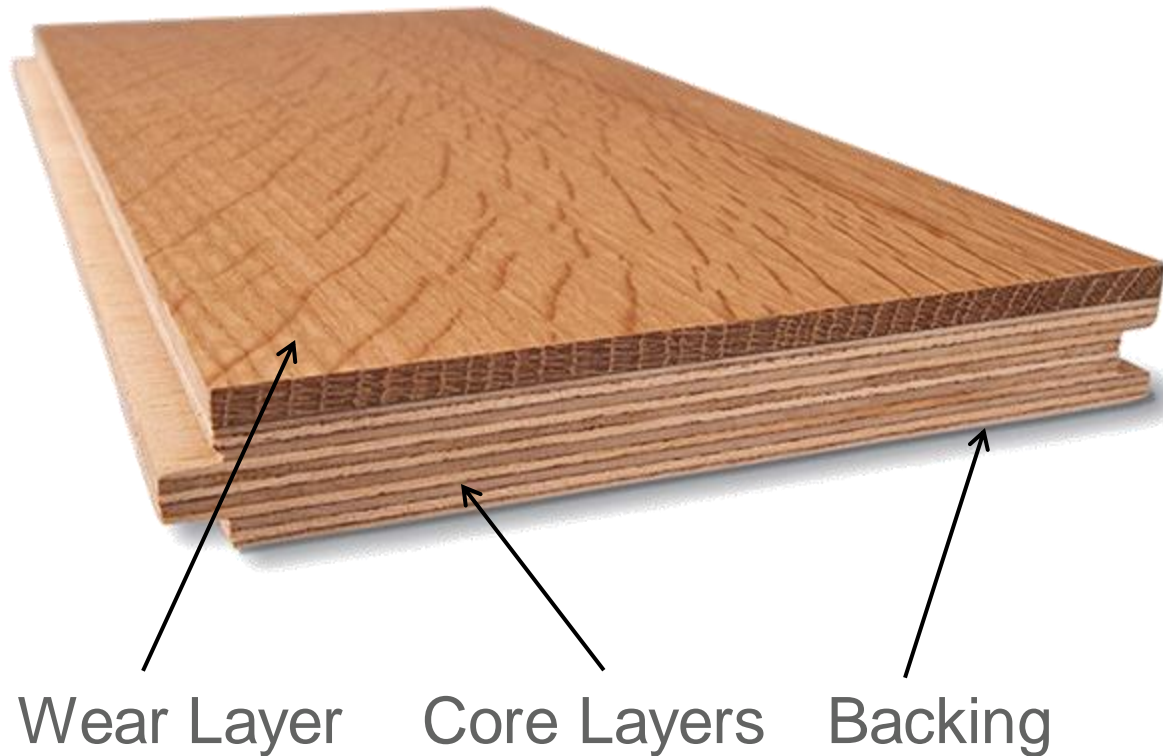


- Solid
 - Solid wood top to bottom



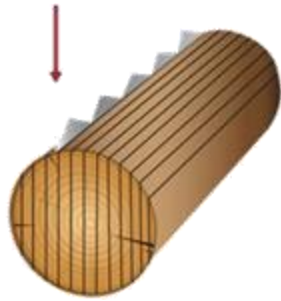
- Engineered
 - Several layers of wood veneer/slats bonded with adhesive

Engineered Construction



- Top layer = wear layer
 - 3-11+ layers
 - 3/8"-3/4" thick
- Wear layer is species selected
- Lower layers = core, backing
- Core, backing layers can be same species as wear layer, different species

Wear Layer Cuts



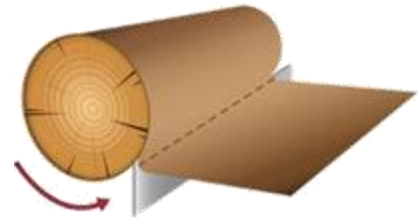
• Sawn

- Logs sawn into material used for wear layers
- Same as solid wood flooring
- Difference is thickness of cut



• Sliced

- Log cut into square called cant
- Cant drawn across angled blade
- Repeated until entire cant turned into veneer



• Rotary

- Logs placed on lathe
- Spun against sharp blade
- Spins until entire log turned into veneer
- Less waste

Sawn Cut



- Same natural variation of color, characteristics as solid wood flooring



Sliced Cut



- Similar to sawn cut
- Same variation of color, characteristics as solid wood flooring
- Thickness limits
- Process stresses wood fiber
- Causes checks



Rotary Cut



- Distinct grain pattern
- More pronounced grain than sawn, sliced cut veneers
- Grain pattern repeats on wide sheets





Manufacturing Engineered Wood Flooring



Manufacturing



- Lumber delivered to flooring plant
- Sorted by grade
- Experienced grading inspectors
- Looking at quality of wood, knot holes, mineral streaks, color, etc.
- Different grades for cabinets, furniture, flooring, pallets

Manufacturing



- Lumber arrives green
- Not yet dried
- Small sticks between each layer
 - Called stickers



Manufacturing



- Stickers used to aid in drying process for lumber
- Aids air circulation
- Minimizes staining



Manufacturing



- Stacked by grade to continue drying
- Stickers used again to help with air flow
- Air-drying can take 6 months
- Air-drying yards can hold <2 million board feet

Manufacturing



- Kiln drying controls temperature, humidity
- Temperatures reach 150-175°F
- Takes 5-7 days
- Typical kiln holds 100,000 board feet



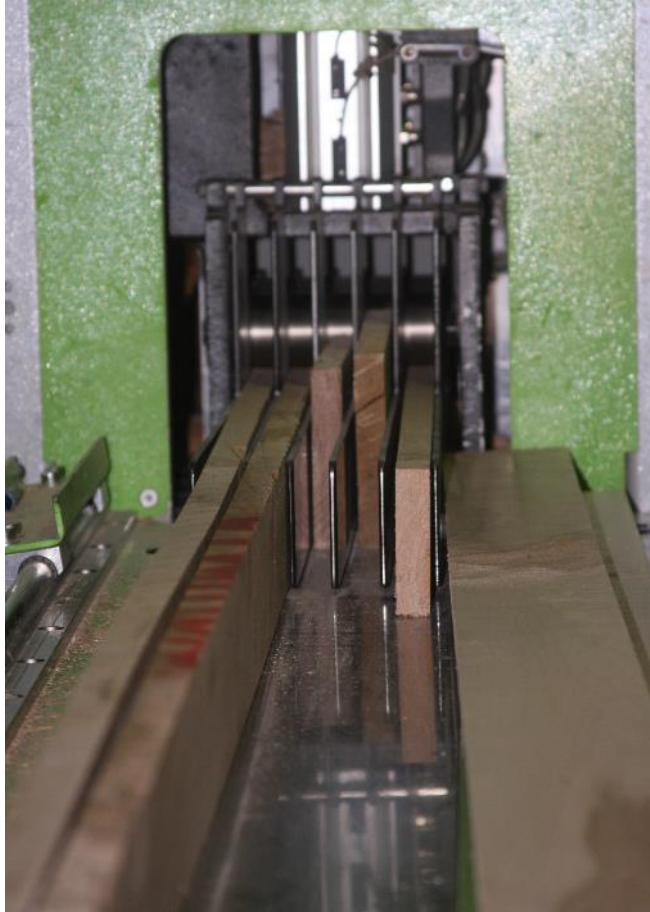
Manufacturing



- Kilns finish drying process
- Saves time, energy, turns inventory faster
- Comes at steep price
- Final results yield stable material
- Sterilizes wood from insects, larvae



Manufacturing

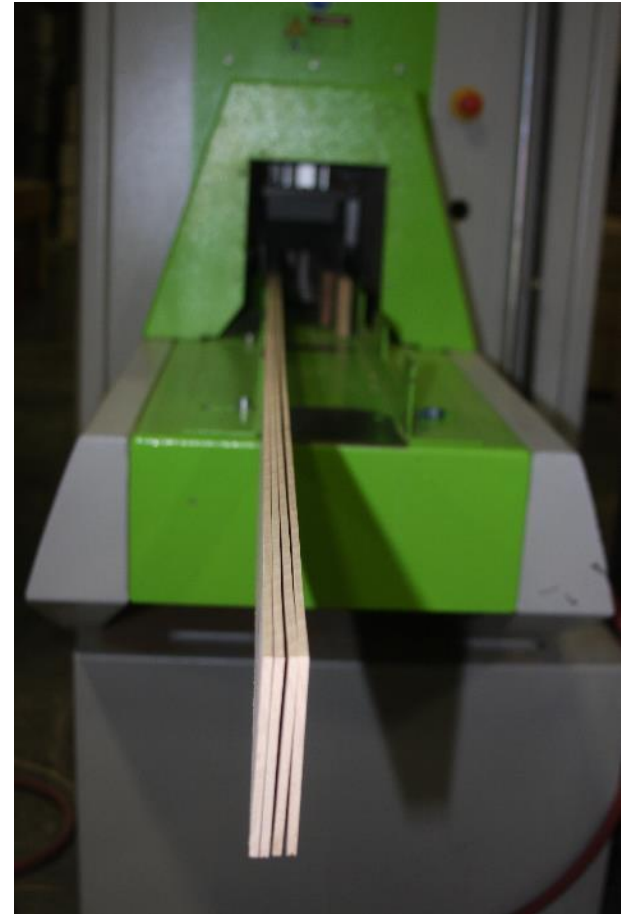


- Dried lumber delivered to line
- Raw lumber run through planer
- Produces boards of varying length, consistent thickness

Manufacturing

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- Planed lumber cut into wear layers
- Each wear layer 1/8" thick



Manufacturing



- Veneers (or lamina) = top wear layer
- Stacked while waiting to be assembled with core, backing layers



Manufacturing



- Core layer may be different species or material
- High-quality birch plywood
- MDF/HDF, other composite products
- Not always produced at same facility



Manufacturing



- Close up of core layer material
- 7-Ply core
- Add backing ply to balance the construction
- 9-Ply with top wear layer, backing added

Manufacturing



- Polyurethane adhesive first applied to core layer
- Roller press



Manufacturing



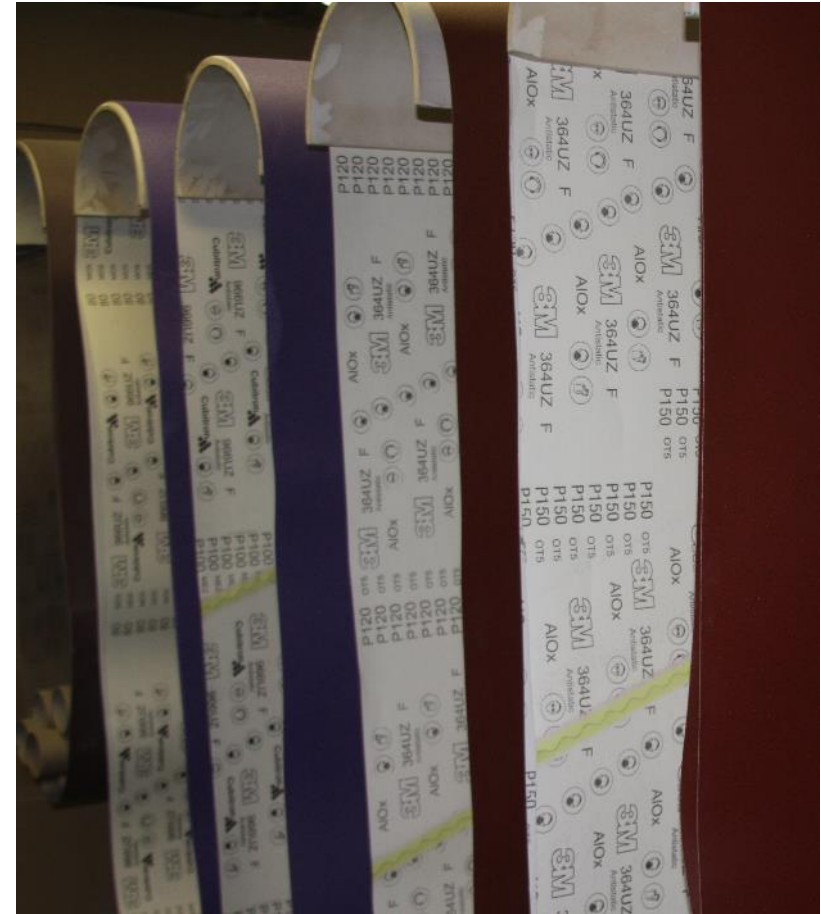
- Top wear layer applied to adhesive
- Roller press



Manufacturing



- The assembled blanks are sanded multiple times



Manufacturing



- Side matching
- Tongue, groove
- Beveling



Manufacturing



- Marking station
- Inspected for defects
- Face, edges
- Knot holes at edges, splits, any characteristic outside grade
- Fluorescent markers indicate flaws

Manufacturing



- Opti cut machine
- Computerized scanner
- Reads fluorescent ink
- Maximizes board length
- Cuts out flaws

Manufacturing



- Final grading stations
- Sorted by color, quality



Manufacturing



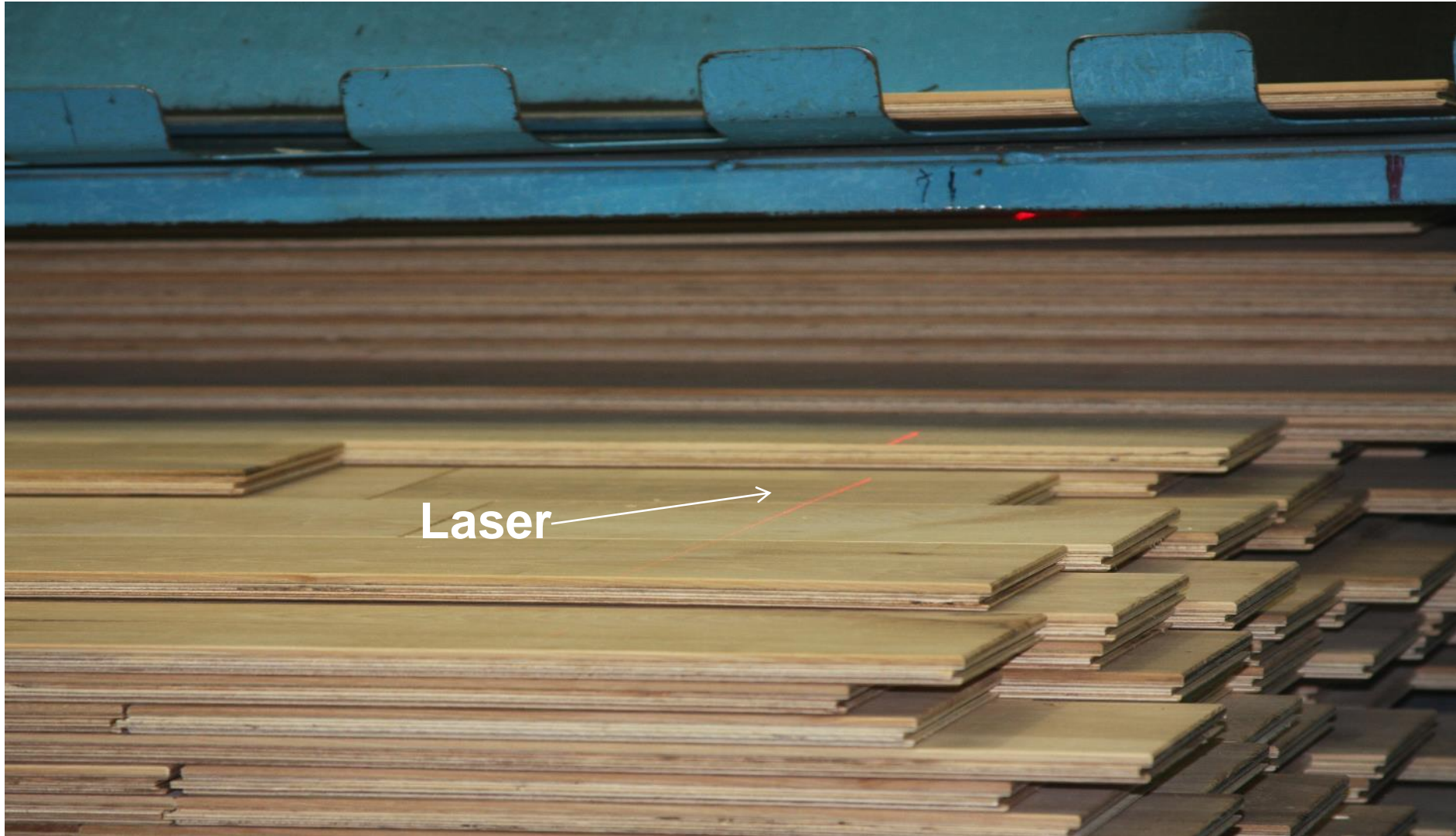
- Boards bunked by grade
- Stored in climate-controlled warehouse
- Bundles have minimum overall length requirements
- Laser provides guide



Manufacturing



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Laser

Manufacturing



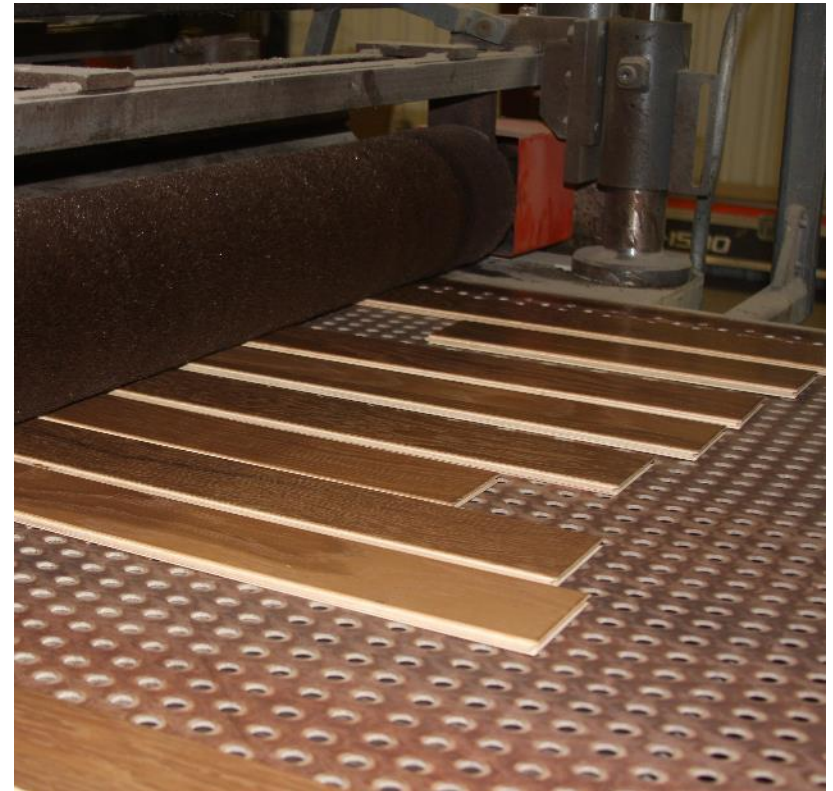
- Finishing line
- Unfinished boards sanded again to refresh face



Manufacturing



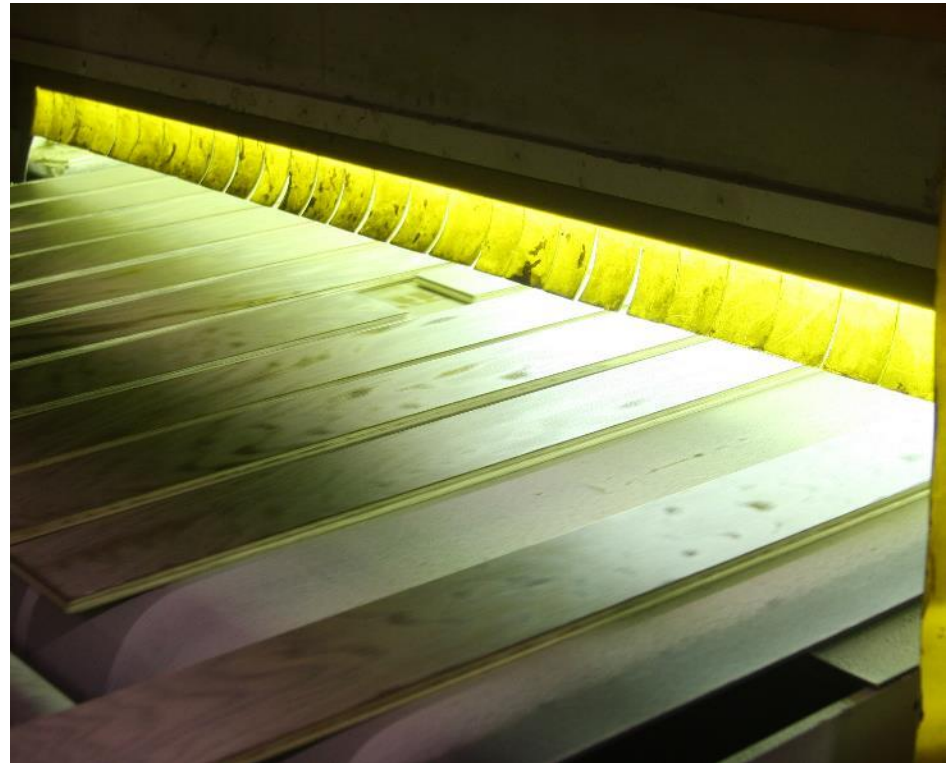
- Several coats



Manufacturing



- UV cure



Manufacturing



- Finished boards graded

Manufacturing



- Finished flooring is packed into boxes for sale

Manufacturing



- Boards sorted by length
- Minimum square footage per box





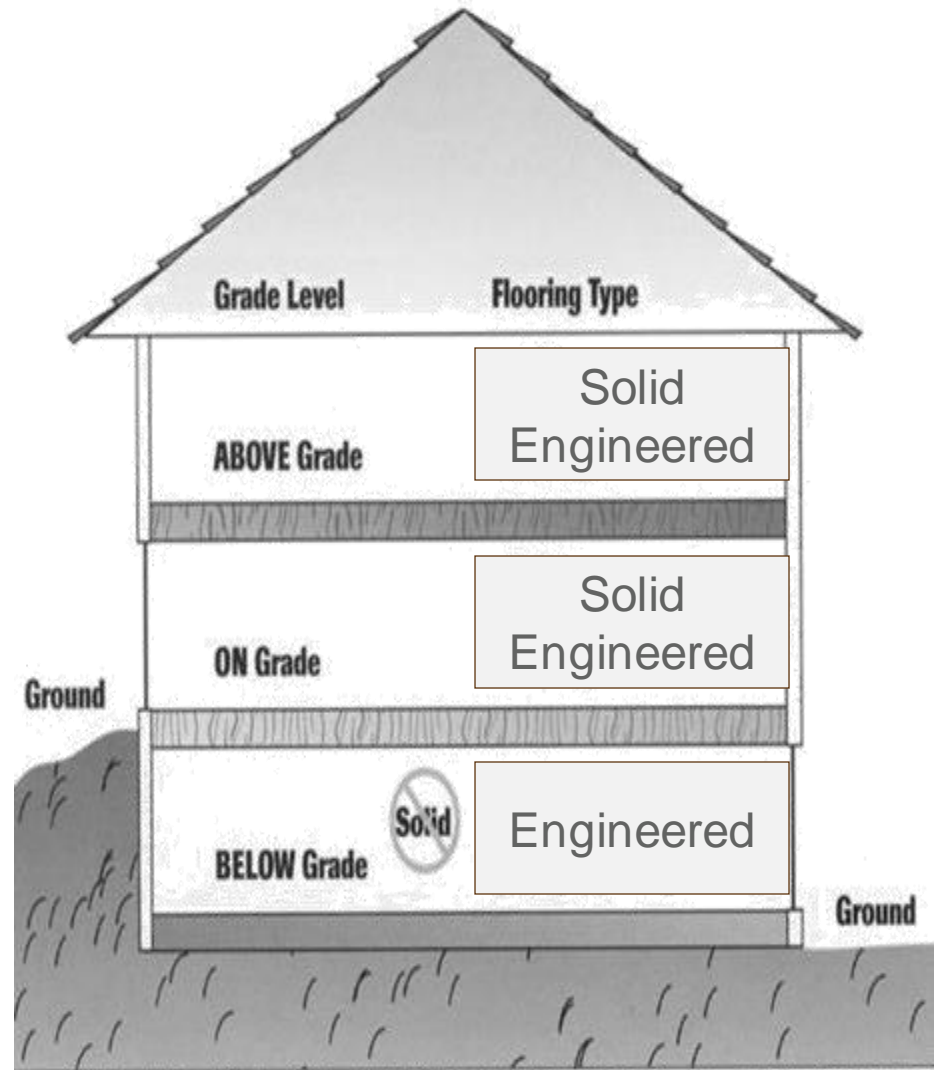
Specifying Engineered Wood Flooring



Job Site Elevation



- Solid
 - Above grade
 - On grade
- Engineered
 - Above grade
 - On grade
 - Below grade
 - Soil ≤ 3 " above floor



Installation Method



Nail-down

- Wood
- Solid, engineered



Glue-down

- Wood, concrete
- Engineered, solid if recommended



Floating

- Wood, concrete, existing flooring
- Engineered



Specifying



- Can't tell solid from engineered when installed
- Sawn face products only





Maintenance of Wood Floors



- Most neglected aspect of specifying hardwood floors
- Essential component of the specification process
- Maximizes lifetime of product
- Minimizes inconvenience of costly renovation
- Protects client's investment
- Promotes long-term sustainability of raw materials

Routine Maintenance



- Sweep, dust mop
- Vacuum with beater bar off to remove dirt, grit between floor boards
- Avoid water, steam mops which can damage finish, wood



Preventive Maintenance

- Place breathable throw-rugs at entrances
- Put felt pads on furniture in contact with floor
- Avoid walking on floor with sport cleats, high heels in disrepair



Preventive Maintenance



- Elephant = 50-100 PSI
- 125-pound woman in high heels = 2,000 PSI
- An exposed high heel nail head = 8,000 PSI



Preventive Maintenance



- Clean spills immediately with damp cloth
- Allowing liquids to sit damages finish, wood

Preventive Maintenance

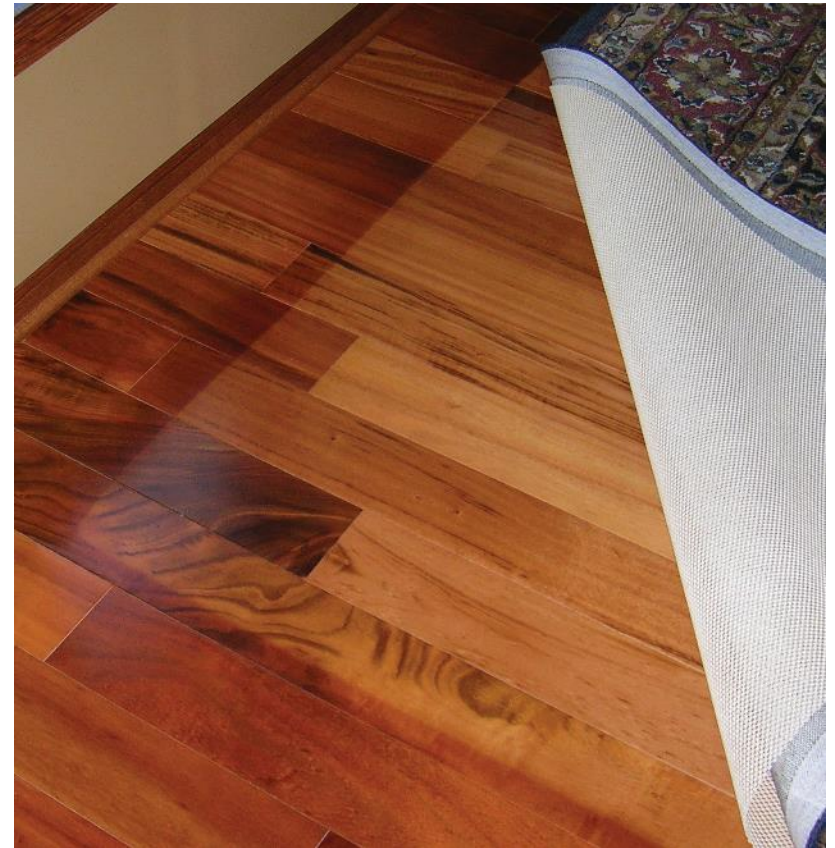


- Clean pet stains immediately
- Urine stains floor when left untreated
- Repair often requires board replacement
- Damage may reach subfloor, requiring replacement

Preventive Maintenance



- Sunlight affects wood floors like skin
- Oxidation, UV exposure
- Periodically move furniture, rugs to minimize exposure



Preventive Maintenance



- Never use household dust cleaners on wood floors
- Use manufacturer recommended cleaner for floor's
- If unsure, wood flooring professional can identify



Long-Term Maintenance



- Maintenance coat
 - Restores luster
 - Repairs small surface finish scratches
 - Lightly abrade surface finish
 - Apply new finish
 - Similar to repainting furniture
- Sand & refinish
 - Repair large scratches, dents
 - Repair exposed wood
 - Sand off finish, some wood
 - 1/32" wood removed
 - Apply new finish



Maintenance Coat



- 24-48 hours = walk on most surfaces
- 48 hours = replace furniture
- 7-30 days = area rugs replaced, depending on finish used



Sand & Refinish



- Sand, finish required for
 - Damaged floors
 - Exposed wood
 - Color changes
- Necessary to repair deep scratches, dents, etc.

Sand & Refinish



- Most wood floors can be sanded, refinished numerous times
- Depends on contractor skill, equipment used, thickness of wear layer, floor flatness

Sand & Refinish



- Same process as maintenance coat, but floor sanded down to bare wood
- Sanded several times, using finer grit each time
- Several coats of finish applied

Sand & Refinish



- EPA requires homes built <1978 tested for lead
- Includes work performed on wood floors
- Contractors required to test, practice safe lead removal procedures



Summary



- Engineered wood floors are real wood floors
- Constructed using multiple layers of wood called plys, lamina
- Top layer is the wear layer, selected species
- Lower layers are core, backing layers, can be any species
- Wear layers made using sawn, sliced, rotary cut veneers
- Each cut produces a different look
- Manufacturing engineered wood floors involves many detailed steps
- Can be installed above grade, on grade, below grade
- Routine care requires sweeping, vacuuming with beater bar off
- Long-term care requires a maintenance coat, sanding, refinishing

Thank You

The logo for the Northwest Florida Area (nwfa) is located in the top right corner. It consists of the lowercase letters 'nwfa' in a white, sans-serif font, with a small green leaf icon integrated into the letter 'a'. The background of the top right corner of the slide features a photograph of a young child sitting on a couch and reading a book.

This concludes this course for:

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A photograph of a bedroom interior. In the foreground, a wooden floor with a herringbone pattern is visible. To the left, a bed with a plaid blanket and white pillow is partially shown. In the background, a dark desk with a chair and a white curtain are visible. The lighting is soft and natural.

Questions?